Setup For Parallel Computation

INTRODUCTION

Ensight supports shared-memory parallel computation via POSIX threads on a variety of platforms. As of this writing, threads are supported on IRIX 6.5, HP-UX 11.0, OSF1 V4.0, AIX 4.3, Solaris 8 (server portion on Solaris 6 and 7 also), Linux 1.1, and Linux 2.4. Additional support may be added in the near future.

BASIC OPERATION

Configuration

Each executable of EnSight can be configured individually to control the number of threads used. The following environment variables are used to specify the maximum number of threads that the executable should use for computation.

ENSIGHT7_MAX_THREADS
> The maximum number of threads to use for each EnSight server. Threads are used to accelerate the computation of streamlines, clips, isosurfaces, and other compute-intensive operations.

ENSIGHT7_MAX_CTHREADS
> The maximum number of threads to use for each EnSight client. Threads in the client are used to accelerate sorting of transparent surfaces.

ENSIGHT7_MAX_SOSTHREADS
> The maximum number of threads to use for each EnSight server-of-servers. This variable is introduced for planned future use, but at the time of this writing no operations in the server-of-servers are accelerated with threads.

OTHER NOTES

The number of threads is limited to 2 (per client or server) with a Standard license, while the upper limit for a Gold license is 128. When setting these parameters it is a good idea to take into account the number of processors on the system. In general, you will not see benefit from setting the parameters higher than the number of total processors. Because the server, server-of-servers and client operate in a pipelined fashion, it is not necessary to limit one in order to apply more threads to another.

Compute intensive server operations that make use of shared memory parallel computations include isosurface, clipping, and particle trace computations. Client threaded operations include transparency resort and display list creation.